

INDEX, VOLUME 99

A

- Air pollution:
 air pollution photographed by satellite. 653.
 smoke from slash burning operations. 684.
- Aircraft and radar observations and thunderstorm-environment interactions. 171.
- Air-sea interaction. 469.
- Albedo, derived from ESSA 3 and 5 data. 818.
- Analysis by theoretical model of effect of mean wind and stability on heat island circulation characteristic of urban complex. 919.
- Analytic solutions of nonlinear omega and vorticity equations. 393.
- Anomaly patterns of climate over Western U.S., 1700-1930, derived from principal component analysis of tree-ring data. 138.
- ANTHES, RICHARD A.:
 Iterative solutions to steady-state axisymmetric boundary-layer equations under intense pressure gradient. 261.
 Numerical experiments with slowly varying model of tropical cyclone. 636.
 Numerical model of slowly varying tropical cyclone in isentropic coordinates. 617
 and Stanley L. Rosenthal and James W. Trout. Preliminary results from asymmetric model of tropical cyclone. 744.
 and James W. Trout and Stanley L. Rosenthal. Comparisons of tropical cyclone simulations with and without assumption of circular symmetry. 759.
- APPA RAO, G.:
 and D. A. Mooley. Distribution function for seasonal and annual rainfall over India. 796.
- Apr. 1971 weather and circulation. 593.
- ASPLIDEN, C. I.:
 and R. L. DeSouza, M. Garstang, N. E. LaSeur, and Y. Hsueh. Low-level jet in Tropics. 559.
- Atlantic hurricane season of 1970. 269.
- Atlantic Seaboard and snowfall prediction method. 311.
- Atlantic tropical systems of 1970. 281.
- Atmospheric convection and thermals. 215.
- Atmospheric models of primitive equations and semi-implicit scheme. 32.
- Atmospheric vapor flux data and hydrology of Eastern North America. 119.
- Aug. 1971 weather and circulation. 889.
- Available potential energy, latent heat release, and midlatitude cyclone. 1.

B

- Barotropic global model and numerical integration of primitive equations. 14.
- Barotropically unstable tropical disturbances and effect of surface friction. 778.
- BARR, SUMNER:
 Modeling study of several aspects of canopy flow. 485.
- BEARDSLEY, R. C.:
 Note on finite-difference approximations for viscous generation of vorticity at a boundary. 387.
- BENNETT, JOHN R.:
 and John A. Young. Influence of latitudinal wind shear upon large-scale wave propagation into Tropics. 202.
- Boundary conditions, used with storm-surge equations. 537.
- Boundary-layer meteorology:
 equations under intense pressure gradient. 261.
 low-level jet in Tropics. 559.
 modeling study of several aspects of canopy flow. 485.
 parameter variations and response of tropical cyclone model. 768.
 wind over Christmas Island. 193.
- BRUTSAERT, WILFRIED:
 and Gour-Tsyh Yeh. Numerical solution of two dimensional steady-state turbulent transfer equation. 494.

BULLOCK, BEN R.:

- and Donald R. Johnson. Generation of available potential energy by latent heat release in midlatitude cyclone. 1.

C

CARLSON, TOBY N.:

- Weather note—apparent relationship between sea-surface temperature of tropical Atlantic and development of African disturbances into tropical storms. 309.

Christmas Island and planetary boundary layer wind. 193.

CLAPP, PHILIP F.:

- and Joseph Sela. Computation of climatological vertical velocities by thermodynamic method. 524.

Climate of midnineteenth century U.S. compared to current normals. 847.

Climate simulation in general circulation model. 335.

Climatological vertical velocities by thermodynamic method. 524.

Climatology of funnel cloud occurrences and comparison with tornadoes. 877.

Climatology of rainfall:

- distribution function for seasonal and annual rainfall over India. 796.

independence of monthly and bimonthly rainfall over south-east Asia during summer monsoon season. 532.

Cloud cover effect on radiation received by the Nimbus HRIR. 807.

Cloud motions from satellites for estimating the circulation over Tropics. 739.

Cloudiness:

Atlantic hurricane season of 1970. 269.

Atlantic tropical systems of 1970. 281.

cloud distribution from ITOS 1, Oct. 1970. 80.

cloud distribution from satellite infrared radiation data. 599

cyclonically curved jet stream. 136.

Eastern Pacific hurricane season of 1970. 286.

Florida cumulus seeding experiment, 1968: numerical model results. 87.

numerical model of cumulus cloud and relative humidity. 37.

satellite view of lake-effect snowstorm. 248.

tropical storm Felice in Oklahoma. 278.

warm continental anticyclone. 162.

Cold-front movement as seen by ATS 3. 549.

Comment on a unique tornado report. 649.

Contents, Vol. 99. 987.

Correction notices: 29, 477, 990.

Correlations between areal precipitation and 850-mb geopotential height. 691.

Correspondence:

objective analysis by cubic spline technique. 977.

reply. 978.

Cubic spline objective analysis technique. 379, 977.

Cyclone development and effects of longwave radiation and surface friction. 831.

D

DANARD, MAURICE B.:

- Numerical study of effects of longwave radiation and surface friction on cyclone development. 831.

Dec. 1970 weather and circulation. 250.

DENNEY, WILLIAM J.:

Eastern Pacific hurricane season of 1970. 286.

DERGARABEDIAN, PAUL:

- and Francis Fendell. Method for rapid estimation of maximum tangential wind speed in tornadoes. 143.

DEROME, JACQUES:

- and A. Wiin-Nielsen. Response of middle-latitude model atmosphere to forcing by topography and stationary heat sources. 564.

DE SANTO, GLORIA:

and Robert E. Welck, Akira Kasahara, and Warren M. Washington. Effect of horizontal resolution in finite-difference model of the general circulation. 673.

DESOUZA, R. L.:

and C. I. Aspliden, M. Garstang, N. E. LaSeur, and Y. Hsueh. Low-level jet in Tropics. 559.

Diagnostic study of tropical disturbance. 67.

DICKINSON, ROBERT E.:

Analytic model for zonal winds in Tropics: I. Details of model and simulation of gross features of zonal mean troposphere, II. Variation of tropospheric mean structure with season and differences between hemispheres. 501, 511.

Distribution function for seasonal and annual rainfall over India. 796.

Drought, March 1971, becomes major concern in the Southwest and in Southern Florida. 551.

DYER, ROSEMARY M.:

Method for filtering meteorological data. 435.

E

Eastern Pacific hurricane season of 1970. 286.

EICHENLAUB, VAL L.:

Further comments on climate of midnineteenth century U.S. compared to current normals. 847.

ELSBERRY, RUSSELL L.:

and E. J. Harrison, Jr. Height and kinetic energy oscillations in limited-region prediction model. 883.

ERICKSON, CARL O.:

Diagnostic study of tropical disturbance. 67.

Error propagation in a one-layer primitive equation model for synoptic scale motion. 606.

Errors in operational National Meteorological Center primitive-equation surface prognoses. 409.

ESTOQUE, MARIANO A.:

Planetary boundary layer wind over Christmas Island. 193.

F

FANKHAUSER, JAMES C.:

Thunderstorm-environment interactions determined from aircraft and radar observations. 171.

Feb. 1971 weather and circulation. 439.

FENDELL, FRANCIS:

and Paul Dergarabedian. Method for rapid estimation of maximum tangential wind speed in tornadoes. 143.

FERGUSON, EDWARD W.:

Picture of month—satellite view of lake-effect snowstorm. 247.

Finite-difference approximations for viscous generation of vorticity at a boundary. 387.

FISHER, GEORGE E.:

and David B. Spiegler. Snowfall prediction method for Atlantic Seaboard. 311.

FLEMING, REX J.:

On stochastic dynamic prediction: I. Energetics of uncertainty and question of closure, II. Predictability and utility. 851, 927.

Florida cumulus seeding experiment, 1968, numerical model results. 87.

Forecasting (see prediction).

FRANK, NEIL L.:

Atlantic tropical systems of 1970. 281.

Friction effects at surface on barotropically unstable tropical disturbances. 778.

FRITSCH, J. MICHAEL:

Correspondence—Reply (to comments on "Objective analysis of two-dimensional data field by cubic spline technique"). 978.

Objective analysis of two-dimensional data field by cubic spline technique. 379.

FRITTS, H. C.:

and V. C. LaMarche, Jr. Anomaly patterns of climate over Western U.S., 1700–1930, derived from principal component analysis of tree-ring data. 138.

G

GABY, DONALD C.:

Picture of month—fast-moving cold front as seen by ATS 3. 549.

GARSTANG, M.:

and R. L. DeSouza, C. I. Aspliden, N. E. LaSeur, and Y. Hsueh. Low-level jet in Tropics. 559.

General circulation models:

effect of horizontal resolution on finite-differences. 673.

numerical integration of primitive equations with a floating set of computation points. 15.

semi-implicit scheme for grid point atmospheric models using primitive equations. 32.

simulation of climate. 335.

Generation of available potential energy by latent heat release in mid-latitude cyclone. 1.

Geostationary-satellite pictures used for wind estimation. 665.

Geostrophic and surface wind at sea. 255.

GLAHN, HARRY R.:

and James E. McDonell. Correspondence—comments on "Objective analysis of two-dimensional data field by cubic spline technique." 977.

GOLDEN, JOSEPH H.:

Waterspouts and tornadoes over South Florida. 146.

GORDON, HARRY:

Comment on a unique tornado report. 649.

GRAY, WILLIAM M.:

and Alf C. Modahl. Summary of funnel cloud occurrences and comparison with tornadoes. 877.

GREEN, RAYMOND A.:

Weather and circulation of Nov. 1970—unusually warm and wet in West, cool and dry in Southeast, with strong blocking in Central Pacific. 165.

Weather and circulation of Apr. 1971—generally cool month with temporary relief from Southwestern drought. 593.

Weather and circulation of Aug. 1971—warm and dry in Northern Plains, cool and wet in Southern Plains, recurrent tropical rainfall along Atlantic coast. 889.

GRUBER, ARNOLD:

and Leroy Herman and Arthur F. Krueger. Use of satellite cloud motions for estimating circulation over Tropics. 739.

H

HAINES, DONALD A.:

and Earl L. Kuehnast. Unusual features observed within series of tornado pictures. 545.

HARRISON, E. J., JR.:

and Russell L. Elsberry. Height and kinetic energy oscillations in limited-region prediction model. 883.

HASSE, LUTZ:

and Volker Wagner. On relationship between geostrophic and surface wind at sea. 255.

HAWKINS, HARRY F.:

Comparison of results of hurricane Debbie (1969) modification experiments with those from Rosenthal's numerical model simulation experiments. 427.

HAYDEN, C. M.:

Nimbus 3 "SIRS" pressure height profiles as compared to radiosondes. 659.

Heat balance in a global general circulation model. 335.

Heat island circulation characteristic of urban complex: theoretical analysis of mean wind and stability effects. 919.

Heat sources forcing in a middle-latitude model atmosphere. 564.

HERMAN, LEROY:

and Arnold Gruber and Arthur F. Krueger. Use of satellite cloud motions for estimating circulation over Tropics. 739.

- HOLLOWAY, J. LEITH, JR.:
and Syukuro Manabe. Simulation of climate by global general circulation model: I. Hydrologic cycle and heat balance. 335.
- HOUGHTON, DAVID D.:
and William S. Irvine, Jr. Propagation of systematic errors in one layer primitive-equation model for synoptic scale motion. 606.
- HSUEH, Y.:
and R. L. DeSouza, C. I. Aspliden, M. Garstang, and N. E. LaSeur. Low-level jet in Tropics. 559.
- HUBERT, L. F.:
and L. F. Whitney, Jr. Wind estimation from geostationary-satellite pictures. 665.
- Humidity augmentation as initial impulse in numerical cloud model. 37.
- Hurricane modification results from Debbie (1969) compared with those from Rosenthal's numerical model simulation experiments. 427.
- Hurricanes:
Atlantic hurricane season of 1970. 269.
Atlantic tropical systems of 1970. 281.
Celia. 162.
Debbie (1969) modification experiments. 427.
Eastern Pacific hurricane season of 1970. 286.
hurricanes and tropical storms of West Coast of Mexico. 302.
tropical storm Felice in Oklahoma. 278.
- Hydrologic cycle in global general circulation model. 335.
- Hydrology of Eastern North America using atmospheric vapor flux data. 119.
- I
- Ice pack and snow thawing detected through combined use of visible and near-infrared measurements from earth satellites. 828.
- Index, Vol. 99. 991.
- Influence of latitudinal wind shear upon large-scale wave propagation into Tropics. 202.
- Infrared nighttime view from ITOS 1. 372.
- Infrared radiation data on cloud distribution, from satellites. 599.
- Interactions between velocity fields of successive thermals. 215.
- Intertropical convergence zone studied with interacting atmosphere and ocean model. 469.
- IRVINE, WILLIAM S., JR.:
and David D. Houghton. Propagation of systematic errors in one layer primitive-equation model for synoptic scale motion. 606.
- Isentropic coordinates used in numerical model of tropical cyclone. 617, 636.
- Iterative solutions to steady-state axisymmetric boundary-layer equations under intense pressure gradient. 261.
- J
- Jan. 1971 weather and circulation. 328.
- JESSUP, EDWARD A.:
Picture of month—tropical storm Felice in Oklahoma. 278.
- Jet at low level in Tropics. 559.
- Jet stream. 136.
- JOHNSON, DONALD R.:
and Ben R. Bullock. Generation of available potential energy by latent heat release in midlatitude cyclone. 1.
and Robert C. Lo. Investigation of cloud distribution from satellite infrared radiation data. 599.
- JOHNSON, STANLEY R.:
and W. J. Maunder and J. D. McQuigg. Effect of weather on road construction: applications of simulation model. 946.
and W. J. Maunder and J. D. McQuigg. Effect of weather on road construction: simulation model. 939.
- JULIAN, PAUL R.:
Some aspects of variance spectra of synoptic scale tropospheric wind components in midlatitudes and Tropics. 954.
- July 1971 weather and circulation. 800.
- June 1971 weather and circulation. 709.
- K
- KASAHARA, AKIRA:
and Robert E. Wellek, Warren M. Washington, and Gloria De Santo. Effect of horizontal resolution in finite-difference model of the general circulation. 673.
- KHANDEKAR, M. L.:
and Gandikota V. Rao. Mutual interaction of multiple vortexes and its influence on binary and single tropical vortex systems. 840.
- Kinematic vertical motion analysis. 715.
- Kinetic energy and height oscillations in limited region prediction model. 883.
- Kinetic energy and quasi-biennial oscillation in stratosphere. 912.
- KOENIG, L. R.:
Numerical experiments pertaining to warm-fog clearing. 227.
- KOSS, WALTER JAMES:
Numerical integration experiments with variable-resolution two-dimensional Cartesian grids using the box method. 725.
- KRUEGER, ARTHUR F.:
and Arnold Gruber and Leroy Herman. Use of satellite cloud motions for estimating circulation over Tropics. 739.
- KUEHNAST, EARL L.:
and Donald A. Haines. Unusual features observed within series of tornado pictures. 545.
- KWIZAK, MICHAEL:
and André J. Robert. Semi-implicit scheme for grid point atmospheric models of primitive equations. 32.
- L
- LAMARCHE, V. C., JR.:
and H. C. Fritts. Anomaly patterns of climate of Western United States, 1700–1930, derived from principal component analysis of tree-ring data. 138.
- LA SEUR, N. E.:
and R. L. DeSouza, C. I. Aspliden, M. Garstang, and Y. Hsueh. Low-level jet in Tropics. 559.
- Latent heat release, available potential energy, and midlatitude cyclone. 1.
- Latitudinal wind shear and wave propagation into Tropics. 202.
- LEARY, COLLEEN:
Systematic errors in operational National Meteorological Center primitive-equation surface prognoses. 409.
- LEWIS, JOHN M.:
Variational subsynoptic analysis with applications to severe local storms. 786.
- Life cycle of thunderstorm cell: numerical simulation. 895.
- Life history of huge pack-ice field. 30.
- LO, ROBERT C.:
and Donald R. Johnson. Investigation of cloud distribution from satellite infrared radiation data. 599.
- Long-period variations in seasonal sea-level pressure over Northern Hemisphere. 49.
- Longwave radiation effects on cyclone development: numerical study. 831.
- LORENZ, EDWARD N.:
N-Cycle time-differencing for stepwise numerical integration. 644.
- LUND, IVER A.:
Correlations between areal precipitation and 850-mb geopotential height. 691.
- M
- Malagasy Republic: 30-hr crossing by tropical cyclone followed by eye re-formation. 478.

- MANABE, SYUKURO:
and J. Leith Holloway, Jr. Simulation of climate by global general circulation model: I. Hydrologic cycle and heat balance. 335.
Mar. 1971 weather and circulation. 551.
- MAUNDER, W. J.:
and Stanley R. Johnson and J. D. McQuigg. Effect of weather on road construction: applications of simulation model. 946.
and Stanley R. Johnson and J. D. McQuigg. Effect of weather on road construction: simulation model. 939.
May 1971 weather and circulation. 654.
- McCLAIN, E. PAUL:
and Alan E. Strong and David F. McGinnis. Detection of thawing snow and ice packs through combined use of visible and near-infrared measurements from earth satellites. 828.
- McDONELL, JAMES E.:
and Harry Glahn. Correspondence—comments on "Objective analysis of two-dimensional data field by cubic spline technique." 977.
- McGINNIS, DAVID F.:
and Alan E. Strong and E. Paul McClain. Detection of thawing snow and ice packs through combined use of visible and near-infrared measurements from earth satellites. 828.
- McPHERSON, RONALD D.:
Note on semi-implicit integration of fine-mesh limited area prediction model on offset grid. 242.
- McQUIGG, J. D.:
and W. J. Maunder and Stanley R. Johnson. Effect of weather on road construction: applications of simulation model. 946.
and W. J. Maunder and Stanley R. Johnson. Effect of weather on road construction: simulation model. 939.
- MESINGER, FEDOR:
Numerical integration of primitive equations with floating set of computation points: experiments with barotropic global model. 15.
Meteorological data filtration method. 435.
Method for rapid estimation of maximum tangential wind speed in tornadoes. 143.
Mexico, hurricanes and tropical storms. 302.
Midlatitude cyclone, available potential energy, and latent heat release. 1.
- MILLER, ALVIN J.:
Kinetic energy and quasi-biennial oscillation. 912.
Minimum temperatures: first and last occurrence during cold season. 650.
- MODAHL, ALF C.:
and William M. Gray. Summary of funnel cloud occurrences and comparison with tornadoes. 877.
Modifying warm fogs by seeding. 227.
- MOHR, TILLMANN:
Picture of month—air pollution photographed by satellite. 653.
Picture of month—life history of huge pack-ice field. 30.
Monsoon summer season independence of monthly and bimonthly rainfall over southeast Asia. 532.
- MOOLEY, D. A.:
Independence of monthly and bimonthly rainfall over Southeast Asia during summer monsoon season. 532.
and G. Appa Rao. Distribution function for seasonal and annual rainfall over India. 796.
- MUENCH, H. STUART:
Temperature measurements in 30- to 40-km region. 158.
Multiple vortices: mutual interaction and its influence on binary and single tropical vortex systems. 840.
- MURRAY, F. W.:
Humidity augmentation as initial impulse in numerical cloud model. 37.
- NAMIAS, JEROME:
and A. James Wagner. Warm continental anticyclone with peripheral moist tongues—recent example illustrated by satellite photographs. 162.
- National Meteorological Center systematic errors in primitive-equation surface prognoses. 409.
- NEWMAN, R. L.:
and R. T. Williams and T. K. Schminke. Effect of surface friction on structure of barotropically unstable tropical disturbances. 778.
- Nimbus HRIR:
detailed sea-surface temperature analysis. 812.
estimation of effect of partial cloud cover on radiation received. 807.
- Nimbus 3 "SIRS" pressure height profiles as compared to radiosondes. 659.
- Northern Hemisphere variations in sea-level pressures. 49.
- Note on finite-difference approximations for the viscous generation of vorticity at a boundary. 387.
- Note on semi-implicit integration of fine-mesh limited area prediction model on offset grid. 242.
- Nov. 1970 weather and circulation. 165.
- Numerical analytic model for zonal winds in tropics: I. Details of model and simulations of gross features of zonal mean troposphere, II. Variation of tropospheric mean structure with season and differences between hemispheres. 501, 511.
- Numerical cloud model and humidity augmentation as initial impulse. 37.
- Numerical experiments pertaining to warm-fog clearing. 227.
- Numerical finite-difference grids:
experiments with variable-resolution two-dimensional Cartesian grids using box method. 725.
grid system for global numerical prediction. 686.
horizontal resolution effect on general circulation model. 673.
- Numerical integration:
experiments with variable-resolution two-dimensional Cartesian grids using box method. 725.
N-cycle time-differencing scheme. 644.
primitive equations with floating set of computation points: experiments with barotropic global model. 15.
- Numerical models:
asymmetric tropical cyclone. 744.
atmosphere and ocean interaction. 469.
canopy flow: several aspects. 485.
circularly symmetric primitive-equation model of tropical cyclone and its response to artificial enhancement. 414.
height and kinetic energy oscillations in limited region. 883.
life cycle of thunderstorm cell. 895.
middle-latitude atmosphere: response to forcing by topography and stationary heat sources. 564.
multiple vortex interaction. 840.
results of 1968 Florida cumulus seeding experiment. 87.
slowly varying tropical cyclone in isentropic coordinates. 617, 636.
synoptic scale motion: propagation of systematic errors in one-layer PE model. 606.
tropical cyclone model comparisons with and without assumption of circular symmetry. 759.
tropical cyclone model response to variations in parameters and domain size. 768.
vortex formation by successive thermals. 577.
- Numerical solution of two-dimensional steady-state turbulent transfer equation. 494.
- Numerical study of effects of longwave radiation and surface friction on cyclone development. 831.
- Objective analysis:
cubic spline technique applied to two-dimensional data field. 379, 977.
spectral modification. 374.
theoretical interpretation of anisotropically weighted smoothing on basis of numerical variational analysis. 698.
variational subsynoptic analysis with applications to severe local storms. 786.

Oct. 1970 weather and circulation. 80.

OGURA, YOSHIMITSU:

and Tsutomu Takahashi. Numerical simulation of life cycle of thunderstorm cell. 895.

Omega equation: nonlinear analytic solutions for structurally simple model of disturbances in baroclinic westerlies. 393.

P

Pack-ice field. 30.

PAEGLE, JAN:

and M. G. Wurtele and Anita Sielecki. Use of open boundary conditions with storm-surge equations. 537.

PARMENTER, FRANCES C.:

Picture of month—irradiated view of Atlantic storm. 979.

Picture of month—nighttime infrared view. 372.

Picture of month—smoke from slash burning operations. 684.

PELISSIER, JOSEPH M.:

and R. H. Simpson. Atlantic hurricane season of 1970. 269.

Picture of month:

Air pollution photographed by satellite. 653.

cyclonically curved jet stream. 136.

fast-moving cold front as seen by ATS 3. 549.

infrared view of Atlantic storm. 979.

life history of huge pack-ice field. 30.

nighttime infrared view. 372.

satellite view of lake-effect snowstorm. 248.

smoke from slash burning operations. 684.

tropical storm Felice in Oklahoma. 278.

PIKE, ARTHUR C.:

Intertropical convergence zone studied with interacting atmosphere and ocean model. 469.

Pilot balloon observations during Line Island Experiment. 193.

Planetary boundary layer wind over Christmas Island. 193.

POLAN, A. L.:

and J. J. Stephens. Spectral modification by objective analysis. 374.

POPE, CADESMAN, JR.:

Tropical cyclone eye re-formation after 30-hr movement over Malagasy Republic. 478.

POSEY, JULIAN W.:

Weather and circulation of Jan. 1971—amplification over U.S. with change in temperature regime. 328.

Weather and circulation of June 1971—reversal of temperature regime in most of U.S. 709.

Precipitation:

areal correlations with geopotential height at 850 mb. 691.

distribution function for seasonal and annual rainfall over India. 796.

event scale measure. 873.

satellite view of lake-effect snowstorm. 248.

snowfall prediction method for Atlantic Seaboard. 311.

weather note: rare event of intense rainfall. 155.

Prediction:

anomaly patterns of climate over Western U.S. from tree-ring data. 138.

Florida seeding experiment, 1968 numerical model results. 87.

height and kinetic energy oscillations in limited region prediction model. 883.

numerical integration of primitive equations. 14.

numerical model and diagnostic study of tropical disturbance. 67.

on stochastic dynamic prediction: I. Energetics of uncertainty and question of closure, II. Predictability and utility. 851, 927.

semi-implicit integration of fine-mesh limited area prediction model on offset grid. 242.

semi-implicit scheme, atmospheric models, and primitive equations. 32.

snowfall prediction method for Atlantic Seaboard. 311.

Pressure gradient and boundary-layer equations. 261.

Primitive equations:

model of circularly symmetric tropical cyclones and its response to artificial enhancement of convective heating functions. 414.

numerical integration and barotropic global model. 14.

semi-implicit scheme for grid-point atmospheric models. 32.

surface prognoses: systematic errors at National Meteorological Center. 409.

systematic-error propagation in one-layer model for synoptic scale motion. 606.

Publications (selected) by NOAA authors. 79, 161, 326, 408, 550, 708.

Q

Quasi-biennial oscillation and kinetic energy in stratosphere. 912.

R

Radar and aircraft observations and thunderstorm-environment interactions. 171.

Radiosonde data as compared with SIRS pressure height profiles. 659.

Rain gage network at Holmdel, N.J. 155.

Rainfall monthly and bimonthly independence over Southeast Asia during summer monsoon. 532.

RAO, GANDIKOTA V.:

and M. L. Khandekar. Mutual interaction of multiple vortexes and its influence on binary and single tropical vortex systems. 840.

RASMUSSEN, EUGENE M.

Study of hydrology of Eastern North America using atmospheric vapor flux data. 119.

Road construction and weather effects: simulation model, applications of simulation model. 939, 946.

ROBERT, ANDRÉ J.:

and Michael Kwizak. Semi-implicit scheme for grid point atmospheric models of primitive equations. 32.

ROBERTS, CHARLES F.:

Note on derivation of scale measure for precipitation events. 873.

Rocketsonde and balloonsonde temperature data. 158.

ROSENTHAL, STANLEY L.:

Circularly symmetric primitive-equation model of tropical cyclones and its response to artificial enhancement of convective heating functions. 414.

Response of tropical cyclone model to variations in boundary layer parameters, initial conditions, lateral boundary conditions, and domain size. 767.

and Richard A. Anthes and James W. Trout. Comparisons of tropical cyclone simulations with and without assumption of circular symmetry. 759.

and Richard A. Anthes and James W. Trout. Preliminary results from asymmetric model of tropical cyclone. 744.

S

SANDERS, FREDERICK:

Analytic solutions of nonlinear omega and vorticity equations for structurally simple model of disturbances in baroclinic westerlies. 393.

SANKAR-RAO, M.:

and Ludwig Umscheid, Jr. Further tests of grid system for global numerical prediction. 686.

SASAKI, YOSHIKAZU:

A theoretical interpretation of anisotropically weighted smoothing on basis of numerical variational analysis. 698.

and Eugene M. Wilkins and Roger H. Schauss. Interactions between velocity fields of successive thermals. 215.

and Eugene M. Wilkins and Roger H. Schauss. Vortex formation by successive thermals: numerical simulation. 577.

Satellite cloud motions for estimating circulation over Tropics. 739.

Satellite digitized picture data: annual course of zonal mean albedo. 818.

- Satellite infrared data:
 cloud cover effect on radiation received by Nimbus HRIR. 807.
 detection of thawing snow and ice packs through use with visible measurements from earth satellites. 828.
 infrared view of Atlantic storm. 979.
 on cloud distribution. 599.
- Satellite infrared spectrometer pressure height profiles as compared to radiosondes. 659.
- Satellite photographs:
 air pollution photographed by satellite. 653.
 Atlantic hurricane season of 1970. 269.
 Atlantic tropical systems of 1970. 281.
 cloud distribution. 80.
 cyclonically curved jet stream. 136.
 Eastern Pacific hurricane season of 1970. 286.
 fast-moving cold front as seen by ATS 3. 549.
 nighttime infrared view. 372.
 pack-ice field. 30.
 satellite view of lake-effect snowstorm. 248.
 smoke from slash burning operations. 684.
 tropical cyclone eye re-formation. 478.
 unnamed Atlantic tropical storms of 1970. 966.
 warm continental anticyclone. 162.
- Satellite photographs used in wind estimation. 665.
- Scale measure for precipitation events. 873.
- SCHAUSS, ROGER H.:
 and Eugene M. Wilkins and Yoshikazu Sasaki. Interactions between velocity fields of successive thermals. 215.
 and Eugene M. Wilkins and Yoshikazu Sasaki. Vortex formation by successive thermals: numerical simulation. 577.
- SCHMINKE, T. K.:
 and R. T. Williams and R. L. Newman. Effect of surface friction on structure of barotropically unstable tropical disturbances. 778.
- Sea-level pressures in Northern Hemisphere. 49.
- Sea-surface temperature analysis utilizing Nimbus HRIR data. 812.
- Sea-surface temperature of tropical Atlantic and development of African disturbances into tropical storms. 309.
- SELA, JOSEPH:
 and Philip F. Clapp. Computation of climatological vertical velocities by thermodynamic method. 524.
 and A. Wiin-Nielsen. On transport of quasi-geostrophic potential vorticity. 447.
 and A. Wiin-Nielsen. Simulation of atmospheric annual energy cycle. 460.
- Semi-implicit integration of fine-mesh limited area prediction model on offset grid. 242.
- Semi-implicit scheme for grid point atmospheric models of primitive equations. 32.
- SEMLAK, R. A.:
 Weather note—rare event of intense rainfall. 155.
- Sept. 1971 weather and circulation. 980.
- SERRA C., SERGIO:
 Hurricanes and tropical storms of West Coast of Mexico. 302.
- Severe local storms and variational subsynoptic analysis. 786.
- SIELECKI, ANITA:
 and M. G. Wurtele and Jan Paegle. Use of open boundary conditions with storm-surge equations. 537.
- SIMPSON, JOANNE:
 and Victor Wiggert. 1968 Florida cumulus seeding experiment: numerical model results. 87.
- SIMPSON, R. H.:
 and Joseph M. Pelissier. Atlantic hurricane season of 1970. 269.
- Simulation of climate by a global general circulation model: I. Hydrologic cycle and heat balance. 335.
- SMITH, ARTHUR H., JR.:
 Picture of month—cyclonically curved jet stream. 136.
- SMITH, PHILLIP J.:
 Analysis of kinematic vertical motions. 715.
- Snowfall prediction method for Atlantic Seaboard. 311.
- South Florida waterspouts and tornadoes. 146.
- Southeast Asia meteorology: independence of monthly and bi-monthly rainfall over southeast Asia during the summer monsoon season. 532.
- Spectra (variance) of synoptic scale tropospheric wind components in midlatitudes and in Tropics. 954.
- SPIEGLER, DAVID B.:
 Unnamed Atlantic tropical storms of 1970. 966.
 and George E. Fisher. Snowfall prediction method for Atlantic Seaboard. 311.
- STARK, L. P.:
 Weather and circulation of Dec. 1970—cold and wet in North and far West with mild, relatively dry conditions elsewhere. 249.
 Weather and circulation of May 1971—persistent cool, wet weather associated with blocking over North America. 654.
- Statistical meteorology:
 aspects of variance spectra of synoptic scale tropospheric wind components in midlatitudes and in Tropics. 954.
 correlations between areal precipitation and 850-mb geopotential height. 691.
 derivation of scale measure for precipitation events. 873.
 distribution function for seasonal and annual rainfall over India. 796.
 effect of weather on road construction. 939, 946.
 first and last occurrences of low temperatures during cold season. 650.
 long-period variations in seasonal sea-level pressure over Northern Hemisphere. 49.
 method for filtering meteorological data. 435.
 stochastic dynamic prediction: I. Energetics of uncertainty and question of closure, II. Predictability and utility. 851, 927.
- Steady-state axisymmetric boundary-layer equations under intense pressure gradient. 261.
- STEPHENS, J. J.:
 and A. L. Polan. Spectral modification by objective analysis. 374.
- Storm-surge equations using open boundary conditions. 537.
- Stratosphere:
 kinetic energy and quasi-biennial oscillation. 912.
 temperature measurements in 30- to 40-km region. 158.
- STRONG, ALAN E.:
 and E. Paul McClain and David F. McGinnis. Detection of thawing snow and ice packs through combined use of visible and near-infrared measurements from earth satellites. 828.
- Study of hydrology of Eastern North America using atmospheric vapor flux data. 119.
- Subsynoptic variational analysis with applications to severe local storms. 786.
- Summary of funnel cloud occurrences and comparison with tornadoes. 877.
- Surface and geostrophic wind at sea. 255.
- Surface friction effects on cyclone development: numerical study. 831.
- Surface friction effects on structure of barotropically unstable tropical disturbances. 778.

T

- TAKAHASHI, TSUTOMU:
 and Yoshimitsu Ogura. Numerical simulation of life cycle of thunderstorm cell. 895.
- Tangential wind speed in tornadoes. 143.
- TAUBENSEE, ROBERT E.:
 Weather and circulation of Mar. 1971—drought becomes major concern in Southwest and Southern Florida. 551.
 Weather and circulation of Sept. 1971—cool in West and warm in East. 980.

- Temperature analysis of sea-surface data utilizing Nimbus HRIR data. 812.
- Temperature measurements in 30- to 40-km region. 158.
- Temperature normals compared to midnineteenth century normals in U.S. 847.
- Temperatures during cold season: first and last occurrences of low values. 650.
- Thawing of snow and ice packs detected through combined use of visible and near-infrared measurements from earth satellites. 828.
- Thermals:
and velocity fields. 215.
in succession and vortex formation: numerical simulation. 577.
- Thermodynamic equation: computation of climatological vertical velocities. 524.
- Thunderstorm:
cell life cycle: numerical simulation. 895.
interaction with environment determined from aircraft and radar observations. 171.
- Time-differencing scheme for stepwise numerical integration. 644.
- Topographic forcing in middle-latitude model atmosphere. 564.
- Tornado:
comment on unique tornado report. 649.
comparison of occurrence with funnel cloud occurrence. 877.
method for rapid estimation of maximum tangential wind speed in tornadoes. 143.
Minnesota tornado of Sept. 5, 1969. 545.
waterspouts and tornadoes over South Florida. 146.
- Tornado picture series: unusual features observed. 545.
- Tree-ring data and anomaly patterns of climate over Western U.S. 138.
- Tropical cyclone eye re-formation after 30-hr movement over Malaysia Republic. 478.
- Tropical cyclone model:
asymmetric model preliminary results. 744.
circularly symmetric primitive-equation model of tropical cyclones and its response to artificial enhancement of convective heating functions. 414.
comparison with and without assumption of circular symmetry. 759.
response to variations in boundary layer parameters, initial conditions, lateral boundary conditions, and domain size. 768.
results from Rosenthal's simulation experiments compared with hurricane Debbie (1969) modification experiments. 427.
using isentropic coordinates. 617, 636.
- Tropical cyclones:
Feb. 8–Mar. 1, 1970, Indian Ocean. 478.
Unnamed Atlantic tropical storms of 1970. 966.
- Tropical meteorology:
analytic model for zonal winds in Tropics: I. Details of model and simulation of gross features of zonal mean troposphere, II. Variation of tropospheric mean structure with season and differences between hemispheres. 501, 511.
Atlantic hurricane season of 1970. 269.
Atlantic tropical systems of 1970. 281.
circulation over Tropics using satellite cloud motions. 739.
diagnostic study of tropical disturbance. 67.
Eastern Pacific hurricane season of 1970. 286.
effect of surface friction on structure of barotropically unstable disturbances. 778.
hurricane Celia. 162.
hurricanes and tropical storms of West Coast of Mexico. 302.
latitudinal wind shear and wave propagation into Tropics. 202.
low-level jet. 559.
sea-surface temperature of tropical Atlantic and development of African disturbances into tropical storms. 309.
tropical activity. 162.
tropical cyclones. 165.
tropical storm Felice in Oklahoma. 278.
- Tropical vortexes: mutual interaction of multiple vortexes and its influence on binary and single systems. 840.
- Tropospheric structure:
analytic model for zonal winds in Tropics: I. Details of model and simulation of gross features of zonal mean troposphere, II. Variation of tropospheric mean structure with season and differences between hemispheres. 501, 511.
aspects of variance spectra of synoptic scale tropospheric wind components in midlatitudes and in Tropics. 954.
- TROUT, JAMES W.:
and Richard A. Anthes and Stanley L. Rosenthal. Comparisons of tropical cyclone simulations with and without assumption of circular symmetry. 759.
and Richard A. Anthes and Stanley L. Rosenthal. Preliminary results from asymmetric model of tropical cyclone. 744.
- Turbulent transfer equation: numerical solution of two dimensional steady-state. 494.
- U**
- UMSCHEID, LUDWIG, JR.:
and M. Sankar-Rao. Further tests of grid system for global numerical prediction. 686.
- Unnamed Atlantic tropical storms of 1970. 966.
- Urban environment: theoretical analysis of a heat island circulation. 919.
- V**
- Variations in sea-level pressures over Northern Hemisphere. 49.
- Velocity fields and thermals. 215.
- Vertical velocity: kinematic analysis. 715.
- Vertical velocity computation: climatological values by thermodynamic method. 524.
- VESTAL, C. K.:
First and last occurrences of low temperatures during cold season. 650.
- Vortex formation by successive thermals: numerical solution. 577.
- Vortex interaction and its influence on binary and single tropical vortex systems. 840.
- Vorticity:
generation at a boundary: finite-difference approximations. 387.
transport of quasi-geostrophic potential vorticity. 447.
- Vorticity equation: nonlinear analytic solutions for structurally simple model of disturbances in baroclinic westerlies. 393.
- VUKOVICH, FRED M.:
Detailed sea-surface temperature analysis utilizing Nimbus HRIR data. 812.
Estimation of effect of partial cloud cover on radiation received by Nimbus HRIR. 807.
Theoretical analysis of effect of mean wind and stability on heat island circulation characteristic of urban complex. 919.
- W**
- WAGNER, A. JAMES:
Long-period variations in seasonal sea-level pressure over Northern Hemisphere. 49.
Weather and circulation of Oct. 1970—marked persistence from Sept. 80.
Weather and circulation of Feb. 1971—stormy month with marked midmonth reversal in temperature regime. 439.
Weather and circulation of July 1971—midmonth circulation reversal accompanied by drought-relieving rains in Texas. 800.
and Jerome Namias. Warm continental anticyclone with peripheral moist tongues—recent example illustrated by satellite photographs. 162.

- WAGNER, VOLKER:
and Lutz Hasse. On relationship between geostrophic and surface wind at sea. 255.
- Warm continental anticyclone with peripheral moist tongues—recent example illustrated by satellite photographs. 162.
- Warm-fog clearing and numerical experiments. 227.
- WASHINGTON, WARREN M.:
and Robert E. Welck, Akira Kasahara, and Gloria De Santo. Effect of horizontal resolution in finite-difference model of the general circulation. 673.
- Water balance of Eastern North America. 119.
- Waterspouts and tornadoes over South Florida. 146.
- Wave propagation into Tropics and latitudinal wind shear. 202.
- Wavelength-spectra modification by objective analysis. 374.
- Weather note:
apparent relationship between sea-surface temperature of tropical Atlantic and development of African disturbances into tropical storms. 309.
rare event of intense rainfall. 155.
- Weather, U.S.:
anomaly patterns of climate over Western U.S. derived from tree-ring data. 138.
drought becomes major concern in Southwest and in southern Florida. 551.
monthly résumés Oct. 1970–Sept. 1971. 80, 165, 250, 328, 439, 551, 593, 654, 709, 800, 889, 980.
snowfall prediction method for Atlantic Seaboard. 311.
tropical storm Felice in Oklahoma. 278.
warm continental anticyclone. 162.
weather note—rare event of intense rainfall. 155.
- WELCK, ROBERT E.:
and Akira Kasahara, Warren M. Washington, and Gloria De Santo. Effect of horizontal resolution in finite-difference model of the general circulation. 673.
- WHITNEY, L. R., JR.:
and L. F. Hubert. Wind estimation from geostationary-satellite pictures. 665.
- WIGGERT, VICTOR:
and Joanne Simpson. 1968 Florida cumulus seeding experiment: numerical model results. 87.
- WIIN-NIELSEN, A.:
and Jacques Derome. Response of middle-latitude model atmosphere to forcing by topography and stationary heat sources. 564.
and Joseph Sela. On transport of quasi-geostrophic potential vorticity. 447.
and Joseph Sela. Simulation of atmospheric annual energy cycle. 460.
- WILKINS, EUGENE M.:
and Yoshikazu Sasaki and Roger H. Schauss. Interactions between velocity fields of successive thermals. 215.
and Yoshikazu Sasaki and Roger H. Schauss. Vortex formation by successive thermals: numerical simulation. 577.
- WILLIAMS, R. T.:
and T. K. Schminke and R. L. Newman. Effect of surface friction on structure of barotropically unstable tropical disturbances. 778.
- Wind estimation from geostationary-satellite pictures. 665.
- WINSTON, JAY S.:
Annual course of zonal mean albedo as derived from ESSA 3 and 5 digitized picture data. 818.
- WURTELE, M. G.:
and Jan Paegle and Anita Sielecki. Use of open boundary conditions with storm-surge equations. 537.
- Y
- YEH, GOUR-TSYH:
and Wilfried Brutsaert. Numerical solution of two-dimensional steady-state turbulent transfer equation. 494.
- YOUNG, JOHN A.:
and John R. Bennett. Influence of latitudinal wind shear upon large-scale wave propagation into Tropics. 202.
- Z
- Zonal winds in Tropics, analytic model: I. Details of model and simulation of gross features of zonal mean troposphere, II. Variation of tropospheric mean structure with season and differences between hemispheres. 501, 511.